UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/533,828	05/03/2005	Joo-Sik Yoon	1266-4 (KPUS210)	7902

28249 7590 02/26/2007

DILWORTH & BARRESE, LLP
333 EARLE OVINGTON BLVD.
SUITE 702
UNIONDALE, NY 11553

EXAMINER	
NG, JAMES WAI HEUNG	
ART UNIT	**PAPER NUMBER**
1763	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/533,828	YOON, JOO-SIK	
	Examiner	Art Unit	
	James Ng	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 May 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☒ Claim(s) *1, 4, and 7* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *May 3, 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification Objection

1. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.

(b) CROSS-REFERENCE TO RELATED APPLICATIONS.

(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.

(d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.

(e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.

(f) BACKGROUND OF THE INVENTION.

(1) Field of the Invention.

(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.

(g) BRIEF SUMMARY OF THE INVENTION.

(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).

(i) DETAILED DESCRIPTION OF THE INVENTION.

(j) CLAIM OR CLAIMS (commencing on a separate sheet).

(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Content of Specification

(a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive, preferably from two to seven words may not contain more than 500 characters.

(b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.

(c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.

(d) The Names Of The Parties To A Joint Research Agreement: See 37 CFR 1.71(g).

(e) Incorporation-By-Reference Of Material Submitted On a Compact Disc: The specification is required to include an incorporation-by-reference of electronic documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e)

and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.

(f) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:

(1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."

(2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."

(g) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and

preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.

(h) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.

(i) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.

(j) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where

a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).

(k) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).

(l) Sequence Listing, See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

2. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old

apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

(1) if a machine or apparatus, its organization and operation;

(2) if an article, its method of making;

(3) if a chemical compound, its identity and use;

(4) if a mixture, its ingredients;

(5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means"

and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

Claim Objections

5. Claim 1 is objected to because of the following informalities: the word "film" is missing between the words "thin" and "forming" in the preamble. Appropriate correction is required.

6. Claims 4 and 7 are objected to because of the following informalities: the word "based" should be spelled "base." Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "has proper operation conditions" is ambiguous since operation conditions depend on specific process, type of substrate, type of reactants, etc.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1, 2, 4 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Jiang et al. (US 20020090464 A1). Jiang teaches:

i. A thin forming apparatus (all components, Fig. 1, Para. 29, lines 1-2) including a substrate support (22, Fig. 1, Para. 29, line13-15) for mounting a substrate (20, Fig. 1, Para. 29, line 13) on which a thin film is to be formed, and a chamber (10, Fig. 1, Para. 29, line 4) which encloses the substrate support (22, Fig. 1, Para. 29, line13-15) and has proper operation conditions, comprising: adsorption means (all elements, Fig. 6, Para. 37-41) attached to surfaces (205, Fig. 6, Para. 42, line 5) of components within the thin film forming apparatus (all components, Fig. 1, Para. 29, lines 1-2) except the substrate (20, Fig. 1, Para. 29, line 13): support for this portion of claim 1 is found in lines 17-19, page 6. Specifically, the specification teaches, "the adsorption means S is obtained by melting a solder metal material such as indium (In) and applying the molten solder metal material to a metal or synthetic resin base material B." Jiang teaches an adsorption means (all elements, Fig. 6, Para. 37-41) is obtained by melting a solder metal material (210, Fig. 6, Para. 42, line 9) and applying the molten solder metal material (210, Fig. 6, Para. 42, line 9) to a metal (200, Fig. 6, Para. 42, line 5) or synthetic resin base material. As such, Jiang

teaches an equivalent apparatus that performs the function of reducing particulate contamination that occurs in physical vapor deposition (PVD) systems when sputtered target material accumulates on the walls of the processing chamber and flakes off onto the workpiece. As a result, Jiang's prior art elements of a shield and a coating for a sputter chamber perform the identical function of "preventing failure of formation of a thin film due to adhesion of a portion of a thin film, which has been formed on and then peeled off from surfaces of components within the apparatus" in substantially the same way, and produces substantially the same results as the corresponding elements disclosed in the specification (MPEP 2183) – as claimed in claim 1.

ii. The apparatus (all components, Fig. 1, Para. 29, lines 1-2) as claimed in claim 1, wherein each of the adsorption means (all elements, Fig. 6, Para. 37-41) is constructed by applying a solder metal material (210, Fig. 6, Para. 42, line 9) on a surface (205, Fig. 6, Para. 42, line 6) of a metal base material (200, Fig. 6, Para. 42, line 5) – as claimed in claim 2.

iii. The apparatus (all components, Fig. 1, Para. 29, lines 1-2) as claimed in claim 2, wherein a plurality of grooves (on 205, Fig. 6) are formed on the surface (205, Fig. 6, Para. 42, line 6) of the base material (200, Fig. 6, Para. 42, line 5) – as claimed in claim 4.

iv. The apparatus (all components, Fig. 1, Para. 29, lines 1-2) as claimed in claim 2, wherein a plurality of protrusions (on 205, Fig. 6) are formed on the surface (205, Fig. 6, Para. 42, line 6) of the base material (200, Fig. 6, Para. 42, line 5) – as claimed in claim 5.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jiang et al. (US 20020090464 A1) in view of Sawada et al. (US 5135629). Jiang is discussed above.

Jiang does not teach:

i. The apparatus as claimed in claim 2, wherein the base material is in the form of a net – as claimed in claim 6.

Sawada teaches a thin film forming apparatus with a liner for capturing particles:

i. Wherein the base material (copper foil, Col. 3, line 60) of the liner (10, Fig. 1, Col. 3, lines 54-55) is in the form of a net (embossed patterns, Col. 11, lines 43-56) – claim 6.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Sawada's embossed patterns to Jiang's chamber shield.

Motivation to add Sawada's embossed patterns is embossing increases the surface area of the base material, reduces the amount of deposition per unit area, and prevents separation of the deposition product as well as the abnormal deformation of the base material due to internal-stress-induced warpage as taught by Sawada (Col. 11, lines 24-42).

13. Claims 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jiang et al. (US 20020090464 A1) in view of Miller (US 4140831). Jiang is discussed above.

Jiang does not teach:

i. The apparatus as claimed in claim 1, wherein each of the adsorption means is constructed by applying solder metal material on a surface of a synthetic resin base material – as claimed in claim 3.

ii. The apparatus as claimed in claim 3, wherein the base material is in the form of a net – as claimed in claim 9.

Miller teaches a metal-clad dielectric sheeting that is:

i. Constructed by applying solder metal material (Col. 5, lines 67-68) on a surface of a synthetic resin base material (Col. 3, lines 31-33) – claim 3.

ii. And, the base material (Col. 3, lines 31-33) is in the form of a net (web, Col. 1, line 21) – claim 9.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace Jiang's metal base material with Miller's synthetic resin base material.

Motivation for the replacement is that the synthetic material has an extreme degree of dimensional stability, is flexible, have high insulation resistance, and is not adversely affected by molten solder temperature conditions as taught by Miller (Col. 1, lines 18-40).

14. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jiang et al. (US 20020090464 A1) in view of Miller (US 4140831), further in view of Nakai et al. (US 4064030). Jiang and Miller are discussed above.

Jiang and Miller do not teach:

i. The apparatus as claimed in claim 3, wherein a plurality of grooves are formed on the surface of the based material – as claimed in claim 7.

ii. The apparatus as claimed in claim 3, wherein a plurality of protrusions are formed on the surface of the base material – as claimed in claim 8.

Nakai teaches a process for surface treatment of polymer films for better adhesion of a synthetic or metal top layer, the treatment produces:

i. A plurality of grooves and protrusions (Fig. 7) on the surface (Col. 2, line 13) of the base material (Col. 2, line 13-14) – claims 7 and 8.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Nakai's surface treatment to Miller's synthetic base material.

Motivation to add Nakai's surface treatment is to produce a surface having excellent adhesion as taught by Nakai (Col. 6, lines 3-4).

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner James Ng whose telephone number is (571) 272-7088. The examiner can normally be reached on a Monday through Thursday schedule from 9am through 4:30pm. The official fax phone number for the 1763 art unit is (571) 273-8300. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner cannot be reached please contact the examiner's supervisor, Parviz Hassanzadeh, at (571) 272-1435.

James Ng
Patent Examiner

Rudy Zervigon 2/16/7
Primary Patent Examiner
Art Unit 1763